

## The Knowledge Bank at The Ohio State University

### Ohio State Engineer

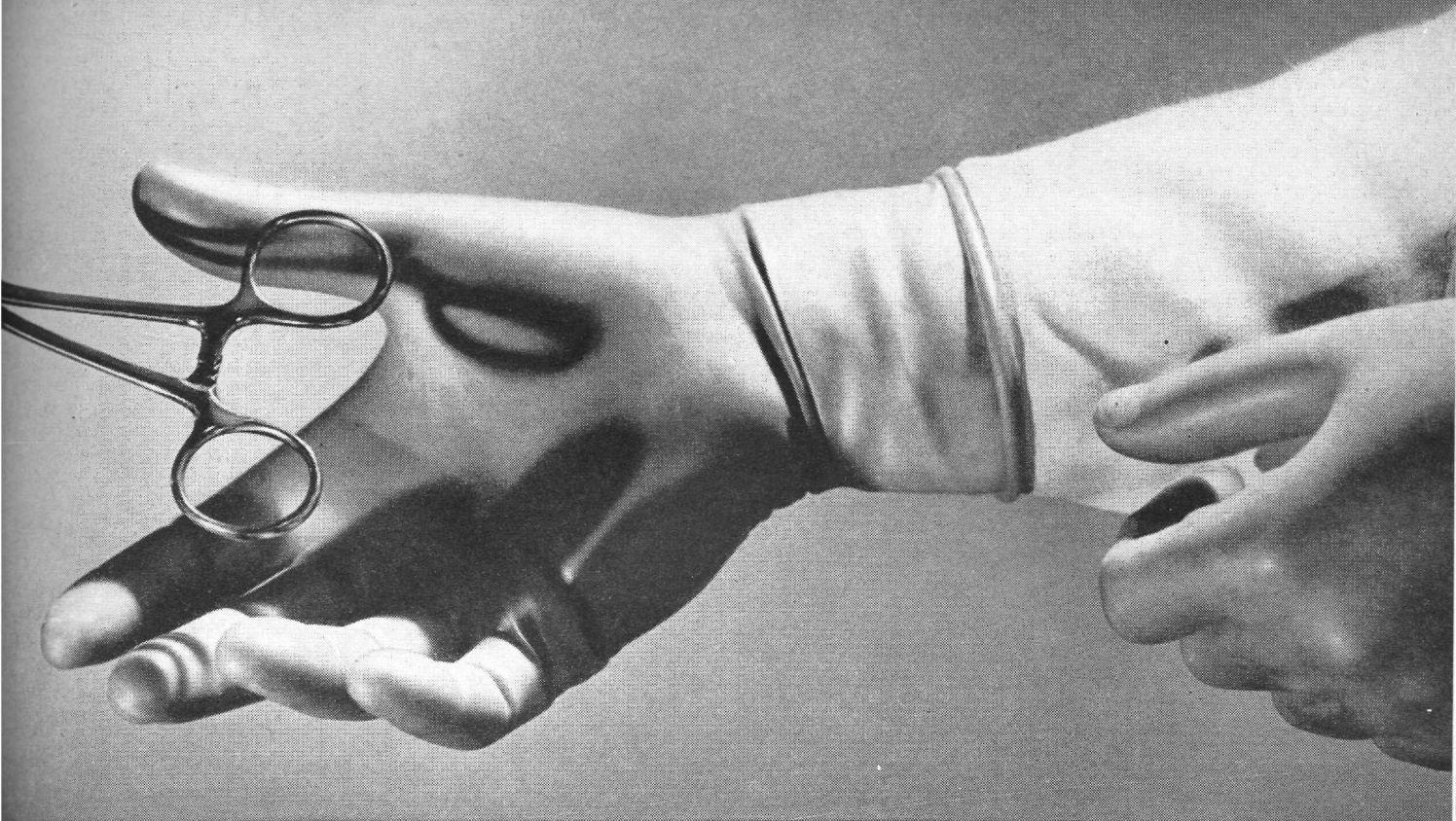
**Title:** Back Matter

**Issue Date:** 1944-03

**Publisher:** Ohio State University, College of Engineering

**Citation:** Ohio State Engineer, vol. 27, no. 4 (March, 1944).

**URI:** <http://hdl.handle.net/1811/36057>



## *Hands that Command the Nation*

THE TECHNICAL KNOWLEDGE, the ingenuity and the resources of America are at the disposal of our skilled medical officers on the fighting fronts of the world. They command every aid the nation can supply. That is one reason why a wounded man's chances of survival are greater today than they have been in any other war.

Among the materials that are helping medical men in their fight to save lives are the *stainless steels*. Used in operating tables, surgical instruments and in other medical equipment, stainless steels are serving in hospitals in this country and overseas.

Frequent sterilization with high temperature steam or strong disinfectants will not injure stainless steels. Their smooth, hard surface is easily kept free from germs that can cause fatal infection. Even in the damp tropics, stainless steels do not rust. Tough and durable, free from the possibility of chipping, stainless steels can withstand the rigors of wartime use.

On the home front, too, stainless steels are making their contribution to the health of the nation. Because they are easier to clean and keep clean than other metals, they are widely used in equipment necessary to the processing, preparing and serving of foods. They keep their bright finish, impart no flavor to food, and resist food chemicals. They will be used increasingly in restaurants, in the home, and in many industries where their unique properties are so desirable.

Stainless steels are "stainless" because they contain more than 12 per cent chromium. Low-carbon ferrochromium, a research development of ELECTRO METALLURGICAL COMPANY,

a Unit of UCC, is the essential ingredient in the large-scale production of stainless steel. Units of UCC do not make steel of any kind. They do make available to steelmakers many alloys which, like ferrochromium, improve the quality of steel. The basic research of these Units means useful new metallurgical information—and better metals to supply the needs and improve the welfare of mankind.

▼  
*Members of the medical profession, architects and designers are invited to send for booklet P-3, "THE USE OF STAINLESS STEELS IN HOSPITALS." There is no obligation.*



**CARBON FOR HEALTH.** Research by a UCC Unit has resulted in different forms of carbon used in milk irradiators, "sun" lamps, gas masks—and in air conditioning installations.



**GASES FOR HEALTH.** LINDE oxygen U.S.P. made by a Unit of UCC is used by the sick in hospitals and at home—and it contributes to the safety of our high flying aviators.



**CHEMICALS FOR HEALTH.** Synthetic organic chemicals, developed by a Unit of UCC, mean better anesthetics, more plentiful sulfa drugs, vitamins and other pharmaceuticals.



**PLASTICS FOR HEALTH.** BAKELITE and VINYLITE plastics, produced by UCC Units, mean sanitary paints, floor coverings, sheeting, "burn sleeves" and other essentials.

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# THERE'S SUCH A THING AS MAKING A SCIENCE OF PEEPING



OWI by Palmer, in an Allegheny Ludlum Plant.

**W**ITH this melter, studying the action of some 35 tons of alloy steel in an Allegheny Ludlum electric furnace, peeping is resolved into a science.

His job is one of the earliest in a long series of operations which bring a melt of Allegheny Ludlum stainless, electrical or other alloy steel to its final form, rigidly true to specifications. His experience determines whether the molten mass within the furnace is progressing at the proper rate, and dictates any adjustments necessary to produce the quality of steel specified.

His judgment is double checked, of course, by thousands of dollars worth of amazingly accurate testing equipment, built for analyzing with hairline precision.

For, in wartime especially, the properties of alloy steels must be maintained with the utmost consistency. Lives of men—even the outcome of battles depends upon this uniformity, because the place of alloy steels is always in the vital heart of a war mechanism.

Lives and battles depend upon other things in this war, too—matters that come home to every house-

hold. Buying bonds, conserving food, fuel, gasoline, rubber, waste fats and scrap metal—all these have to do with how soon the war will be won, and at what price. They are *everyone's* jobs. Have you done—are you doing—all you can?



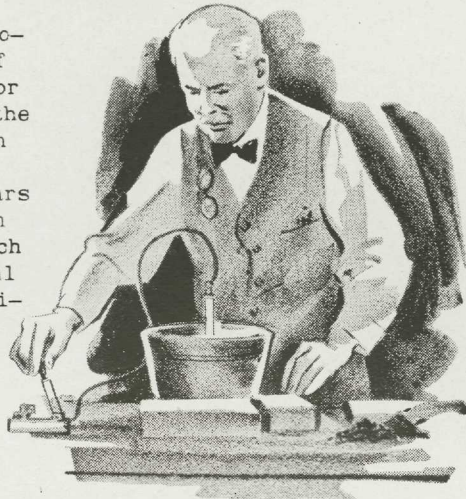
**Allegheny Ludlum**  
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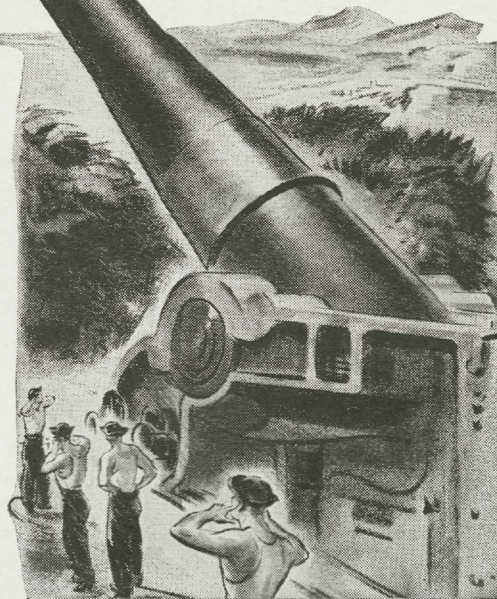
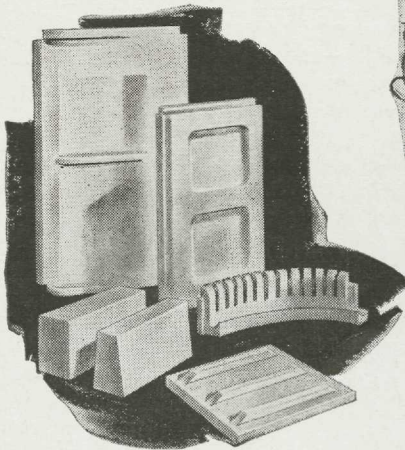
# Looking at the future through a little iron bowl!

1) This little iron bowl helped shape the pattern of industry to-day; it holds the key to much of the progress that is to come. For in it Dr. E. G. Acheson created the first man-made abrasive, silicon carbide, to which he gave the trade name "Carborundum"—52 years ago. From that discovery in turn came the super refractories which opened the way for the economical development of modern metallurgical processes.



2) For instance, one of these super refractories is vitally important to the process by which our huge naval and coast defense guns are annealed under closely controlled conditions.

3) To withstand other specific service needs covering a wide range of conditions over 65 varieties of Carborundum Brand Specialized Refractories are available. Used in furnaces, kilns, retorts and refining equipment, they are helping to speed output of thousands of war essentials.



4) After the war, these super refractories will help produce new and better materials. When you encounter a refractory problem in the field, remember Carborundum Refractory Specialists stand ready to help you solve it. The Carborundum Company, Perth Amboy, New Jersey.

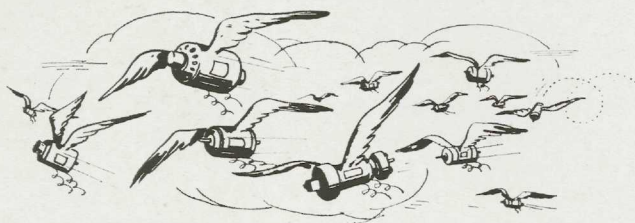






# Campus News

RESEARCH AND ENGINEERING KEEP GENERAL ELECTRIC YEARS AHEAD

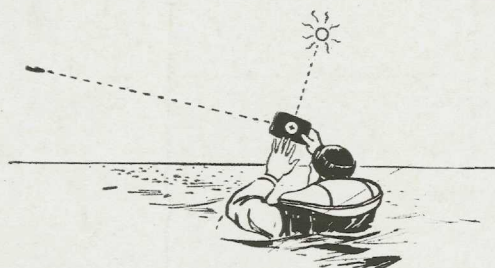


## FLYING FAMILY

**W**HEN a big bomber or a punchy fighter thunders off the field to keep a date high over an enemy target several hundred miles away, many electric motors go along with it—but not just for the ride.

From the time the starting motors turn over the cold engines till, back over the home field, a combat-weary man presses a button and the retractable landing gear lowers from the plane's belly, electric motors are doing hard, exacting work.

These motors, seemingly delivering power out of proportion to their lightness, have taken over most of the tiring muscular jobs . . . like lifting and lowering the flaps against tremendous and varying wind pressures . . . like swinging around the gun turrets at the gunner's slightest signal. And thousands of these are G-E motors, being supplied in ever-increasing numbers for armament operation and for the actuating parts of planes.



## SOLAR SEARCHLIGHT

**W**HEN a dazzling point of light gleams on the broad seascape, and when suddenly that point becomes a blinding glare that persists in following your plane, chances are a man is adrift at sea and needs your help.

He is using one of the new emergency signaling mirrors, designed by General Electric in co-operation with the Coast Guard, the Bureau of Standards, and the National Inventors' Council.

These mirrors are already aboard hundreds of lifeboats and rafts. The shipwrecked sailor follows three simple steps, printed in large letters on the back of the mirror, to shoot a beam of sun-glare at a target—and that target may be a plane or ship up to ten miles away.



## UPSTART

**M**AYBE you've wondered how the big Fortresses and Liberator bombers of our Air Forces—operating from the cold Aleutians, Newfoundland, and Iceland—can be started in such cold climates without a moment's loss of time.

One of the reasons is a small General Electric device—the starting vibrator for aircraft engines—one of the three hundred and more G-E developments for our fighting planes. This starting vibrator provides a very hot spark which helps aircraft engines to start instantly, regardless of weather conditions.

Hear the General Electric radio programs: "The G-E All-girl Orchestra" Sunday 10 p.m. EWT, NBC—"The World Today" news, every weekday 6:45 p.m. EWT, CBS.

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